AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-44 (Canceled).

45. (Currently Amended) A method of assaying a sample for an enzyme that modifies the rate of joining a first substrate with a second substrate to form a product or for a factor that affects the activity of said enzyme, wherein the presence, concentration, or activity of said enzyme or said factor is not known, comprising:

(a) forming a composition comprising said sample, said first substrate and said second substrate;

(b) incubating said composition under conditions wherein said enzyme can form said product at a differing rate in the presence or absence of said enzyme or factor, wherein said enzyme or factor is not part of the product;

(c) immobilizing a luminescent label on an electrode, wherein the luminescent label is linked to said product and said product is linked to said electrode, the immobilization being dependent on the formation of product;

(d) applying a voltage at said electrode so as to induce said immobilized luminescent label to emit luminescence; and

(e) measuring emitted luminescence so as to measure the presence of said enzyme or factor in said sample.

46. (Currently Amended) A method of assaying a sample for an enzyme that modifies the rate of joining a first substrate with a second substrate to form a product or

for a factor that affects the activity of said enzyme, wherein the presence, concentration, or activity of said enzyme or said factor is not known, comprising:

(a) forming a composition comprising said sample, said first substrate and said second substrate, said first substrate being linked to a luminescent label and said second substrate being linked to an electrode;

(b) incubating said composition under conditions wherein said enzyme can form said product at a differing rate in the presence or absence of said enzyme or factor, wherein said product is linked to said luminescent label and said electrode and wherein said enzyme or factor is not part of the product;

(c) applying a voltage at said electrode so as to induce said luminescent label in said product to emit luminescence; and

(d) measuring emitted luminescence so as to measure the presence of said enzyme or factor in said sample.

47. (Previously Presented) The method of claim 46, wherein said second substrate is linked to said electrode via a first binding reagent attached to the second substrate that can specifically bind to a second binding reagent attached to said electrode.

48. (Previously Presented) The method of claim 46, wherein said electrode is further linked to one or more additional substrates, said second substrate and said one or more additional substrates forming a patterned array of substrates on the electrode, said patterned array of substrates comprising at least two regions that contain substrates that differ in structure.

49. (Previously Presented) The method of claim 46, wherein said composition comprises one or more additional substrates, said second substrate and said one or more additional substrates being patterned on an array of independent electrodes, at least two electrodes containing substrates that differ in structure.

50. (Currently Amended) A method of assaying a sample for an enzyme that modifies the rate of joining a first substrate with a second substrate to form a product or for a factor that affects the activity of said enzyme, wherein the presence, concentration, or activity of said enzyme or said factor is not known, comprising:

(a) forming a composition comprising said sample, said first substrate and said second substrate, said first substrate being linked to a luminescent label and said second substrate being linked to a capture moiety;

(b) incubating said composition under conditions wherein said enzyme can form said product at a differing rate in the presence or absence of said enzyme or factor, wherein said product is linked to said luminescent label and said capture moiety and wherein said enzyme or factor is not part of the product;

(c) capturing said capture moiety on an electrode;

(d) applying a voltage at said electrode so as to induce said luminescent label in said product to emit luminescence; and

(e) measuring emitted luminescence so as to measure the presence of said enzyme or factor in said sample.

51. (Currently Amended) The method of claim 45, 46, or 50, wherein said enzyme catalyzes formation of a covalent bond between said first substrate and said second substrate.

52. (Previously Presented) The method of claim 45, 46, or 50, wherein said first substrate or said second substrate comprises peptides.

53. (Previously Presented) The method of claim 45, 46, or 50, wherein said first substrate or said second substrate comprises nucleic acids.

54. (Previously Presented) The method of claim 45, 46, or 50, wherein said enzyme is selected from nucleic acid polymerases, nucleic acid ligases, integrases, ribosomes, ubiquitin-protein ligases and trans-glutaminases.

55. (Currently Amended) A method of assaying a sample for an enzyme that cleaves a substrate or for a factor that affects the activity of said enzyme, wherein the presence, concentration, or activity of said enzyme or said factor is not known, comprising:

(a) forming a composition comprising said sample and said substrate;

(b) incubating said composition under conditions wherein said enzyme can cleave said substrate;

(c) immobilizing a luminescent label on an electrode, wherein said electrode is not a carbon electrode and wherein the luminescent label is linked to said substrate and said substrate is linked to said electrode, the immobilization being dependent on the presence of uncleaved substrate;

(d) applying a voltage at said electrode so as to induce said immobilized luminescent label to emit luminescence; and

(e) measuring emitted luminescence so as to measure the presence of said enzyme or factor in said sample.

56. (Currently Amended) A method of assaying a sample for an enzyme that cleaves a substrate or for a factor that affects the activity of said enzyme, wherein the presence, concentration, or activity of said enzyme or said factor is not known, comprising:

(a) forming a composition comprising said sample and said substrate, wherein said substrate is linked to a luminescent label and to an electrode, wherein said electrode is not a carbon electrode;

(b) incubating said composition under conditions wherein said enzyme can cleave said substrate so as to cleave said luminescent label from said electrode;

(c) applying a voltage at said electrode so as to induce said luminescent label in said substrate to emit luminescence; and

(d) measuring emitted luminescence so as to measure the presence of said enzyme or factor in said sample.

57. (Previously Presented) The method of claim 56, wherein said substrate is linked to said electrode via a first binding reagent attached to said substrate that can specifically bind to a second binding reagent attached to said electrode.

58. (Previously Presented) The method of claim 56, wherein said electrode is further linked to one or more additional substrates, said substrate and said one or more additional substrates forming a patterned array of substrates on the electrode, said patterned array of substrates comprising at least two regions that contain substrates that differ in structure.

59. (Previously Presented) The method of claim 56, wherein said composition comprises one or more additional substrates, said substrate and said one or more

additional substrates being patterned on an array of independent electrodes, at least two electrodes containing substrates that differ in structure.

60. (Currently Amended) A method of assaying a sample for an enzyme that cleaves a substrate or for a factor that affects the activity of said enzyme, wherein the presence, concentration, or activity of said enzyme or said factor is not known, comprising:

(a) forming a composition comprising said sample and said substrate, wherein said substrate is linked to a luminescent label and to a capture moiety;

(b) incubating said composition under conditions wherein said enzyme can cleave said substrate so as to cleave said luminescent label from said capture moiety;

(c) capturing said capture moiety on an electrode, wherein said electrode is not a carbon electrode;

(d) applying a voltage at said electrode so as to induce said luminescent label linked to said substrate to emit luminescence; and

(e) measuring emitted luminescence so as to measure the presence of said enzyme or factor in said sample.

61. (Previously Presented) The method of claim 55, 56, or 60, wherein said enzyme cleaves a covalent bond.

62. (Previously Presented) The method of claim 55, 56, or 60, wherein said substrate comprises a peptide.

63. (Previously Presented) The method of claim 55, 56, or 60, wherein said substrate comprises a nucleic acid.

64. (Previously Presented) The method of claim 55, 56, or 60, wherein said enzyme is selected from nucleases, proteases and glycosidases.

65. (Previously Presented) The method of claim 45, 46, or 50, wherein said electrode comprises elemental carbon.

66. (Previously Presented) The method of claim 45, 46, or 50, wherein said electrode comprises glassy carbon, carbon black, graphite, carbon fibers, carbon nanotubes or combinations thereof.

67. (Previously Presented) The method of claim 45, 46, 50, 55, 56, or 60, wherein said electrode comprises conductive particles dispersed within or on a polymeric material.

68. (Canceled).

69. (Previously Presented) The method of claim 45, 46, 50, 55, 56, or 60, wherein said composition further comprises an inhibitor of said activity and the measurement of said activity is correlated to the amount or inhibitory ability of said inhibitor.

70-76 (Canceled).

77. (Withdrawn) A kit for measuring the activity of an enzyme that joins a first substrate and a second substrate, the kit comprising the enzyme, a solid phase, the first substrate, the second substrate and an electrochemiluminescence label, wherein said solid phase comprises an electrode that is linked to said first substrate and said electrochemiluminescent label is linked to said second substrate.

78. (Withdrawn) A kit for measuring the activity of an enzyme that cleaves a substrate, the kit comprising the enzyme, a solid phase, the substrate and an

electrochemiluminescence label, wherein said solid phase comprises an electrode, said substrate is linked to said electrode and said electrochemiluminescence label and said enzyme cleaves said substrate so as to form a first product linked to said electrode and a second product linked to said electrochemiluminescence label.

79. (Withdrawn) The kit of claim 77 or 78, wherein said electrode is further linked to one or more additional substrates, so as to form a patterned array of substrates on the electrode, said patterned array of substrates comprising at least two regions that contain substrates that differ in structure.

80. (Withdrawn) The kit of claim 77 or 78, wherein said solid phase comprises an array of independent electrodes and said kit further comprises one or more additional substrates, linked to said array of independent electrodes so that at least two electrodes contain substrates that differ in structure.

81. (Previously Presented) The method of claim 47, wherein the first and second binding reagents are selected from-antibody-hapten pairs, hapten-antibody pairs, receptor-ligand pairs, ligand-receptor pairs, complementary nucleic acid pairs, metal-metal ligand pairs, metal ligand-metal pairs, avidin-biotin, biotin-avidin, biotin-streptavidin, and streptavidin-biotin.

82. (Previously Presented) The method of claim 81, wherein the first and second binding reagents are selected from-biotin-streptavidin and streptavidin-biotin.

83. (Previously Presented) The method of claim 57, wherein the first and second binding reagents are selected from antibody-hapten pairs, hapten-antibody pairs, receptor-ligand pairs, ligand-receptor pairs, complementary nucleic acid pairs, metal-

metal ligand pairs, metal ligand-metal pairs, avidin-biotin, biotin-avidin, biotin-streptavidin, and streptavidin-biotin.

84. (Previously Presented) The method of claim 83, wherein the first and second binding reagents are selected from biotin-streptavidin and streptavidin-biotin.

85. (Currently Amended) The method of claims 45, 46, 50, 55, 56, or 60, wherein said electrode ~~comprises~~consists essentially of a metal.

86. (Currently Amended) The method of claim 85, wherein said ~~electrode~~metal comprises gold or platinum.

87. (Previously Presented) The method of claims 45, 46, 50, 55, 56, or 60, wherein said factor is selected from an enzyme, an enzyme inhibitor, a denaturing compound, an enzyme activator, an enzyme deactivator, and a co-enzyme.

88. (Canceled)

89. (New) The method of claims 45, 46, or 50, wherein said electrode is not a carbon electrode.